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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/777,340	02/06/2001	Takeshi Kawasaki	FUJA 18.301	5183

			EXAMINER
26304	7590	10/05/2004	NGUYEN, ALAN V

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ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/777,340	KAWASAKI ET AL.
	Examiner	Art Unit
	Alan Nguyen	2662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☒ All   b)☐ Some * c)☐ None of:

       1.☒ Certified copies of the priority documents have been received.

       2.☐ Certified copies of the priority documents have been received in Application No. _____.

       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3, 4*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The disclosure is objected to because of the following informalities:

On page 3 line 22-29 and page 4 lines 1-7, the paragraph in this stated

section seems to be the same as the preceding paragraph.

There are various typographical and grammatical errors throughout the

specification. Some examples are on page 14 line 18, "there are two main

information" could read -- there are two main information parameters --, and on

line 22, "are a sending" should read -- is a sending --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

3.   Claims 1-9, 11-14, 16, and 17 are rejected under 35 U.S.C. 102(e) as being

anticipated by Kohzuki et al (US 6,512,741) hereafter Kohzuki.

Regarding **claims 1, 2, 4, 5, 16, and 17** Kohzuki discloses a traffic shaper that

controls the flow of incoming variable length IP packets and corresponds to the packet

flow control apparatus performing flow control of packets of the present application, which comprises:

In the invention described by the Kohzuki reference, the packet buffer 1410 of figure 14 corresponds to the buffer memory for temporarily accumulating arrived packets until a sending time for each packet of the present application;

The packet length identifier circuit 1499 of Kohzuki corresponds to the counter means updated based on a rate determined in accordance with a packet length calculated by a counter value of the counter means and limited flow of packets. The packet length identifier circuit 1499 determines the length of the incoming packets. For example see col 20 lines 39-67;

The calculation unit 1440 of Kohzuki is used to calculate the sending time of the incoming packets and corresponds to the sending time determining means for determining the sending time of each packet based on the counter value and a present time. See col 20 lines 47-67; and

The packet buffer read controller 1414 of Kohzuki reads out the packet from the buffer based on the sending time and corresponds to the sending order control means for managing a sending order of each packet accumulated in the buffer memory, and for sending a read instruction of each packet to the buffer memory, based on the sending time determined by the sending time determining means. See col 19 lines 15-20;

The invention of Kohzuki utilizes calculation unit 1440 to determine the sending time of a respective packet based on the parameters from packet buffer address memory 1412 and packet length identifier circuit 1499. The sending time calculation is

then sent to the packet buffer read controller 1414 where the packets held in the buffer

are read out. This corresponds to the features of the flow control apparatus and, in

particular, the sending time determining means of the present application as disclosed

in claims 1, 2, 4 and 5. See col 19 lines 39-67. Col 16, lines 1-47 of Kohzuki discloses

the determination of the sending time of the next cell by calculation unit 1440. This

corresponds to the determination of the sending time of the next packets by the sending

time determining means of the present application.

Regarding **claims 3 and 6** Kohzuki discloses a traffic shaper that controls the

flow of incoming variable length IP packets and corresponds to the packet flow control

apparatus performing flow control of packets of the present application, which

comprises:

In the invention described by the Kohzuki reference, the packet buffer 1410 of .

figure 14 corresponds to the buffer memory for temporarily accumulating arrived

packets until a sending time for each packet of the present application;

The packet length identifier circuit 1499 of Kohzuki corresponds to the counter

means updated based on a rate determined in accordance with a packet length

calculated by a counter value of the counter means and limited flow of packets. The

packet length identifier circuit 1499 determines the length of the incoming packets. For

example see col 20 lines 39-67;

The calculation unit 1440 of Kohzuki is used to calculate the sending time of the

incoming packets and corresponds to the sending time determining means for

determining the sending time of each packet based on the counter value and a present

time. See col 20 lines 47-67; and

The packet buffer read controller 1414 of Kohzuki reads out the packet from the

buffer based on the sending time and corresponds to the sending order control means

for managing a sending order of each packet accumulated in the buffer memory, and for

sending a read instruction of each packet to the buffer memory, based on the sending

time determined by the sending time determining means. See col 19 lines 15-20;

The invention of Kohzuki utilizes calculation unit 1440 to determine a sending

interval to indicate when the packet can be sent. This interval calculation is adjusted to

allow accommodation or absorption of fluctuations due to the difference between the

numbers of bytes of sending packets. This adjustment of the sending interval

corresponds to the recovery time of the present application. The sending interval

calculation of Kohzuki's embodiment is then used to calculate the sending time and later

sent to the packet buffer read controller 1414 to control the transmission of packets from

packet buffer 1411. See col 20 lines 28-62.

Regarding **claims 7, 8, and 9** with the features in parent claims 4, 5, and 6 addressed

above, respectively, Kohzuki discloses when the packet buffer is empty, the calculation

of the sending time of the input packet is done and forwarded to the packet buffer read

controller 1414 to output said input packet. This corresponds to the process the present

application of when there are no packets belonging to the control unit in the buffer

memory for the control unit of the input packets, the sending time determining means

determines the sending time of the input packet when the input packet is written into the buffer memory, and transfers the sending time to the sending order control means, and updates the parameters in the memory means based on the sending time. See col 16 lines 35-45.

Regarding **claim 11** with the features in parent claim 1 addressed above, Kohzuki discloses a sorting unit 1445 that sorts out the order of packets and leaves them in a sorting memory, where the contents are later sent to the packet buffer read controller 1414 to output the respective packets. This sorting unit and memory of Kohzuki corresponds to the sending order control means of the present application, where the sending order control means previously sorts the sending order of the packets accumulated in the buffer memory, based on the sending time information of the packets received from the sending time determining means.

Regarding **claims 12 and 14** with the features in parent claim 1 addressed above, Kohzuki discloses where sorting unit 1445 divides packets into separate priority levels, such as high and low. Packets with different priorities are transmitted at different times. Packets with a priority of "high" are sent first. The process of where the sorting unit 1445 divides packets into separate priority levels corresponds to the sending order control means dividing the groups of packets into a plurality of time zones. See col 15 lines 24-47.

Regarding **claim 13** with the features in parent claim 1 addressed above, Kohzuki

discloses a the packet buffer read controller 1414 sorts the sending time into the sorting

memory before the packet is supposed to be sent. The sending time is stored

temporarily in various memories, such as contract sorting 1446, sorting memory 1447,

and packet sending unit 1420. These memories correspond to where the sending order

control means stores the sending time to a different memory, and sorts the sending time

into the sorting memory before the time that the packet needs to be outputted.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kohzuki

in view of Kilkki (US 6,081,505).

Regarding **claim 10** Kohzuki fails to disclose where the parameters in the

memory means are normalized based on a limited flow value, so as to set an update

rate of the counter means to "1".

Kilkki discloses a cell scheduling system where the link capacity utilizes a

normalized vale of C=1. See col 19 lines 55-67.

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to modify Kohzuki's apparatus to utilize parameters that are

normalized in order to simplify calculations of the sending time and to set a counter limit, as taught by Kilkki. The motivation is an efficient system that schedules packets in a timely manner due to the reduced complexities of the timing computations. See col 4 lines 30-51 of Kohzuki.

6.   Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kohzuki in view of Keenan et al (US 6,570,890) hereafter Keenan.

Regarding **claim 15** with the features in parent claim 1 addressed above, Kohzuki discloses the use of sorting packets by priority. See col 15 lines 25-37.

Kohzuki, however, fails to expressly disclose where the packet having a shorter packet length is preferentially sent from the sorting memory.

Keenan discloses a method of transmission and control of data packet through a network that utilizes small packets to carry delay sensitive information, as small packets transmitted out the node are less prone to errors. See col 17 lines 19-30.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Kohzuki's apparatus to have a preference in transmitting packets having a shorter length in their respective priority groups, as taught by Keenan. The motivation is a system with less latency for the other packets that are sent after the shorter, preferentially chosen packets. Transmission of the shorter packets first would ensure that said packets would have a smaller chance of encountering complications in output. See col 4 lines 30-51 of Kohzuki.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to show the state of the art with respect to scheduling and flow control of data packets:

US Patent (6,657,954) to Bird et al

US Patent (5,640,389) to Masaki et al

US Patent (6,560,230) to Li et al

US Patent (6,205,151) to Quay et al

US Patent (6,643,260) to Kloth et al

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Nguyen whose telephone number is 571-272-3089. The examiner can normally be reached on 9am-6pm ET, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9314. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

AVN
September 27, 2004

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